

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims

1-7. (Canceled)

8. (Currently Amended) The method according to ~~claim 6~~ claim 26, further comprising:
providing in the switches, VLAN tags for the frames sent from the hosts to the access router; and
configuring the access router to be VLAN aware.

9. (Canceled)

10. (Previously Presented) The method according to claim 26, further comprising, retrieving by the access router, address mapping information for the hosts during a user authentication procedure.

11. (Previously Presented) The method according to claim 26, further comprising, retrieving by the access router, address mapping information for the hosts during an IP allocation procedure.

12. (Previously Presented) The method according to claim 26, further comprising, providing more than one access router in the access network, the VLANs being configured such that the access routers belong to the same VLANs.

13-18. (Canceled)

19. (Currently Amended) The system according to ~~claim 18~~ claim 27, wherein the access router is VLAN aware, and the at least one switch includes means for providing VLAN tags for the frames sent from the hosts to the access router.

20. (Canceled)

21. (Previously Presented) The system according to claim 27, wherein the access router includes means for retrieving address mapping information for the hosts during a user authentication procedure.

22. (Previously Presented) The system according to claim 27, wherein the access router includes means for retrieving address mapping information for the hosts during an IP allocation procedure.

23. (Previously Presented) The system according to claim 27, wherein more than one access router is provided in the system, and the at least one switch includes means for configuring the VLANs such that the access routers belong to the same VLANs.

24-25. (Canceled)

26. (Currently Amended) A method in an access network for forcing a plurality of hosts connected to the access network to communicate through the access network rather than directly with each other, said access network comprising an access router and one or more switches, wherein the hosts are in communication contact with the access router via the switches, said method comprising the steps of:

configuring in each switch, at least one port-based uplink Virtual Local Area Network (VLAN) for carrying uplink traffic to the access router, wherein each uplink VLAN is dedicated to a single host, and each host is associated with a different switch port of the switch;

defining in the switches, one asymmetric downlink VLAN, said downlink VLAN for carrying downlink traffic from the access router to the plurality of hosts, said downlink VLAN being common to all of the hosts connected to the access network;

configuring the VLANs such that the hosts connected to the access network belong to the same IP subnet; and

forcing the switches to route traffic from a first host to a second host in the same IP subnet through the access router, said forcing step comprising:

configuring the access router as a modified Address Resolution Protocol (ARP) proxy, wherein when the access router receives an ARP request from the first host requesting the MAC address of the second host, the access router ~~returns~~ performs the steps of:

determining from internal information that the second host is present on the IP subnet;

upon determining that the second host is present on the IP subnet, sending to the first host, the MAC address of the access router; and

subsequently receiving a packet from the first host; and

subsequently forwarding by the access router, packets the packet received from the first host to the second host.

27. (Currently Amended) A system for forcing a plurality of hosts connected to an access network to communicate with each other through the access network rather than directly with each other, said system comprising:

an access router for providing the hosts with access to the access network; and
at least one intermediate switch connected between the hosts and the access router, said at least one switch comprising:

means for configuring in the switch, at least one port-based uplink Virtual Local Area Network (VLAN) for carrying uplink traffic to the access router, wherein each uplink VLAN is dedicated to a single host, and each host is associated with a different switch port of the switch;

means for configuring a single asymmetric downlink VLAN for carrying downlink traffic from the access router to the hosts, wherein the downlink VLAN is common to all of the hosts connected to the access network; and

means for configuring the VLANs such that all of the hosts belong to the same IP subnet;

wherein the access router includes a modified Address Resolution Protocol (ARP) proxy agent, wherein when the access router receives an ARP request from a first host requesting the MAC address of a second host in the same IP subnet, the access router ~~returns~~ is configured to:

determine from internal information that the second host is present on the IP subnet;

send to the first host, the MAC address of the access router; ~~and~~ upon determining that the second host is present on the IP subnet;

subsequently receive a packet from the first host; and

~~means for subsequently forwarding by the access router, packets~~ forward the packet received from the first host to the second host.

28. (Currently Amended) A method in an access network for forcing a plurality of hosts connected to the access network to communicate through the access network rather than directly with each other, said access network comprising an access router and one or more switches, wherein the hosts are in communication contact with the access router via the switches, said method comprising the steps of:

configuring in each switch, at least one port-based Virtual Local Area Network (VLAN) for carrying both uplink traffic and downlink unicast traffic between the access router and individual hosts connected to the switch, wherein each VLAN is dedicated to a single host, and each host is associated with a different switch port of the switch;

configuring the VLANs such that the hosts connected to the access network belong to the same IP subnet;

configuring the access router as a modified Address Resolution Protocol (ARP) proxy, wherein when the access router receives an ARP request from a first host

requesting the MAC address of a second host in the same IP subnet, the access router ~~returns~~ performs the steps of:

determining from internal information that the second host is present on the IP subnet;

upon determining that the second host is present on the IP subnet,
sending to the first host, the MAC address of the access router; and

subsequently receiving a packet from the first host; and

subsequently forwarding by the access router, packets the packet
received from the first host to the second host.

29. (Currently Amended) A system for forcing a plurality of hosts connected to an access network to communicate with each other through the access network rather than directly with each other, said system comprising:

an access router for providing the hosts with access to the access network; and
at least one intermediate switch connected between the hosts and the access router, said at least one switch comprising:

means for configuring in the switch, at least one port-based Virtual Local Area Network (VLAN) for carrying both uplink traffic and downlink unicast traffic between the access router and individual hosts connected to the switch, wherein each VLAN is dedicated to a single host, and each host is associated with a different switch port of the switch;

means for configuring the VLANs such that all of the hosts belong to the same IP subnet;

wherein the access router includes a modified Address Resolution Protocol (ARP) proxy agent, wherein when the access router receives an ARP request from a first host requesting the MAC address of a second host in the same IP subnet, the access router ~~returns~~ is configured to:

determine from internal information that the second host is present on the IP subnet;

send to the first host, the MAC address of the access router; ~~and~~ upon determining that the second host is present on the IP subnet;

subsequently receive a packet from the first host; and

~~means for subsequently forwarding by the access router, packets~~ forward
the packet received from the first host to the second host.